

## **Comments Regarding EPS Issues**

Submitted by Stirling Energy Systems, Inc.  
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Following are comments of Stirling Energy Systems, Inc. regarding the issues outlined in Mr. Williamson's February 9 and February 17 letters.

### Issue 1. EPS funding levels:

Clearly, to the extent changes to the EPS unavoidably result in increased costs, it would seem appropriate to consider increasing the EPS funding levels, either through an increased surcharge or from state budget funding. (The latter would seem to be a difficult proposition, given the state's current budget condition. However, if new industry could result from, for example, the development of a large solar power plant in the state, there would be substantial new jobs, new tax revenues to the state, and potentially more of the dollars paid by rate payers staying in the state rather than going outside to pay for fuel purchases, etc.)

The current approach taken by the state's utilities (APS, TEP) has been for the utility to use whatever dollars they receive via the EPS surcharge to purchase hardware rather than electricity. This means they cannot purchase very much solar equipment, regardless of the EPS requirement, and the entire purpose of the EPS to stimulate large-scale development of renewable energy and thereby make a major impact on the state's air and water quality is undermined.

Frankly, an EPS that grows to a whopping 1.1% at its peak is pretty pathetic. It plays lip service to renewables and the environment and that's about it. At the time a RPS (or EPS) was originally being considered, Arizona was taking a leadership position in establishing a specific mandate for renewable energy production – I believe it was the first state in the Union to do so. Today, however, most states have some sort of renewable portfolio standard, and virtually all are bigger than Arizona's. As I believe the Commission is aware, California has established a RPS that grows to 20% by 2012 (accelerated from an original deadline date of 2017); and Governor Schwarzenegger has endorsed increasing the RPS to 33%. Nevada has an RPS that started at 5% and grows to 15% by 2013; New Mexico has established an RPS that grows to 10%.

There's something terribly wrong with this picture. But so long as the Arizona EPS is set at such a puny level, it will fail to attract much new business activity in the state, and the costs of the program will be substantial ... and the economic and environmental benefits will be minimal.

## Issue 2. Elimination of the EPS expiration date:

If the EPS program was such that it would stimulate the deployment of large-scale renewable energy projects (and given the state's mix of renewable resources, a large-scale renewables program would almost inevitably have to include a substantial solar build out), then the costs of the renewable technologies would come down drastically. According to our own cost studies and those performed by consultants to the US Department of Energy and by the national SunLab laboratories, the costs of concentrating solar power – the type of solar technology that is designed for large-scale solar farms (supply-side technology rather than P.V.s that are more demand-side individual home or business systems) – would come down from the high cost of today's "hand-built" hardware to mass-produced systems (think automotive industry-type production scale) that would deliver energy in the 7-9 c/kWh range after the first 1,000 MW is built ... and dropping to below 5 c/kWh when a few more gigawatts are deployed. (Frankly, our dish studies indicate a steeper cost curve than that, but I am citing figures from the SunLab and Sargent & Lundy studies of troughs and towers that were commissioned by DOE.) Peak power at those prices would be attractive to utilities without any EPS mandate. Wind is already near levels where it is competitive with conventional fossil- or nuclear-fuel based generation. The drawbacks for wind in Arizona are 1) there isn't much wind of sufficient quality and sustainability throughout the year in this state (according to NREL studies, studies done by TEP and APS, etc.); and 2) what wind there is tends to blow in the evenings and not during the peak demand periods of the day, so the value of the wind energy to the utilities is not great.

But IF an EPS program could be modified to stimulate the deployment of large-scale solar, the EPS requirement could be "grandfathered" out in some reasonable period of time. Unfortunately, as the program stands now, whatever deployment of environmentally sustainable technology (that's a SRP phrase) is generated because of the mandate will stop abruptly as soon as the EPS requirement terminates. Unfortunately, the situation is really even worse than that: if the utilities view the renewable technology to be too expensive, they will drag their heels in installing it, particularly if they think they may be able to delay until the EPS expires --- and can avoid putting the equipment in altogether.

## Issue 3. DSM funding:

The problem I see with Demand Side Management is that it tends to focus on programs like timers on house lights, weatherstripping, low-flush toilets, etc. These are all good things and are, in their own way, effective. To the extent, however, that a major portion of the EPS surcharge funds get diverted to these

type of devices (which should stand on their own for the homeowner) or to marketing these type of devices, rather than putting in generating equipment that is kinder to the environment and can make a major improvement to the air we breathe, the water we drink, etc., this is not good. I believe, therefore, that DSM funding should not be restored.

Issue 4. Allocation of funding among various technologies:

This, we gather, is really addressing the need for a solar set-aside in the portfolio standard. According to our studies and DOE renewable resource analyses, Arizona has the potential for up to 5 million Mwh/year of wind and geothermal energy and about 1 million Mwh/year of biomass energy. It has, however, the potential to generate enough electricity on just 5% of its land to replace 575 Hoover Dams. But at today's cost levels, solar is the most expensive renewable resource (at EPS levels of 1.1% of retail electricity sold in the state). The existing 60% solar set-aside is critical to getting virtually any solar installed in the state.

Issue 5. Should Arizona increase the EPS?

From our earlier comments, it is apparent that we believe the EPS should be increased substantially. If it were increased to, say, 20% (like our neighbors to the west), with the 60% solar set-aside left intact, it would dictate the installation of thousands of MW worth of solar power plants. At those types of volumes, the cost of solar – primarily a peak-period resource – would come down to levels of cost (either capital cost of equipment or cost of energy) that would not require any surcharge funding. In addition, Arizona would have attracted a substantial number of jobs for manufacturing solar equipment, for installation of solar farms, and for on-going operations of the farms. DOE, based on a study by the University of Nevada at Las Vegas graduate business school, estimates that the installation of 1,000 MW of solar at the rate of 100 MW per year, would, at its peak, generate over 7,000 new jobs (including the multiplier effect).

Issue 6. Requirements for the phase-in of renewable technologies:

We have not studied A.A.C. R14-2-1618 B. 3 and, therefore, cannot comment on it.

Issue 7. Should new and emerging technologies be included:

To the extent that the new technologies have been tested and validated to be reasonably reliable and not problematic to the utilities being able to maintain a highly reliable and dependable system, we would encourage the new technologies to be included. With its immense solar resources, Arizona should

become a leader in the production of clean energy for the entire region; with new technologies (such as solar hydrogen production), the state could become the Saudi Arabia of the western hemisphere and the supplier of a vast percentage of the total energy used in North America (at least) – not just for electricity generation but for transportation energy as well.